

What is claimed is:

1 ✓ A method of indicating an undesired operation condition of a centrifugal separator, which includes a centrifugal rotor forming a separation chamber, a supply conduit for supplying a liquid mixture to be separated to the separation chamber, the liquid mixture containing at least two components, at least two outlets for discharging separated component, respectively, out of the separation chamber, one outlet of the two outlets for discharging a separated liquid phase comprising one of the components, and a first outlet conduit, the interior of which communicates with said one outlet, said method comprising the steps of

operating the centrifugal separator,  
sensing a normal operating pressure in the first outlet conduit, when a normal flow of the liquid mixture prevails in the supply conduit and a normal flow of the liquid phase prevails in the first outlet conduit,

at least substantially decreasing the flow of the liquid mixture through the supply conduit from the normal flow of the liquid mixture during a predetermined period of time,

20 at least substantially decreasing the flow of the liquid phase through the first outlet conduit from the normal flow of the liquid phase during the same predetermined period of time,

sensing the course of the pressure change in the outlet conduit from the normal operating pressure during the predetermined period of time, and

generating an error signal in response to the sensed course of pressure change when this deviates from an expected normal course of pressure change.

2. A method according to claim 1, wherein the flow of the liquid phase through the first outlet conduit is prevented during the predetermined period of time.

3. A method according to claim 1, wherein the flow of the liquid mixture through the supply conduit is prevented during the predetermined period of time.

4. A method according to claim 1, wherein the second of the separated components constitutes sludge, a second outlet of the centrifugal separator is formed by a sludge discharge means for intermittent discharge of the sludge, the centrifugal rotor forms an outlet chamber for said one component, and a paring disc is arranged in the outlet chamber and forms said one outlet, and wherein the error signal is generated if the pressure in the first outlet conduit decreases to a predetermined low pressure during the predetermined period of time.

5. A method according to claim 4, wherein the predetermined period of time, during which the pressure change in the first outlet conduit is sensed, begins as soon as the centrifugal separator has reverted to an expected normal operation condition after a sludge discharging event.

6. A method according to claim 1, wherein the second of  
the separated components is constituted by sludge and the second  
outlet of the centrifugal separator is formed by a sludge  
discharge means for continuous discharge of the sludge, and  
5 wherein the error signal is generated if the pressure in the  
first outlet conduit decreases at a rate differing from an  
expected normal pressure decreasing rate during the  
predetermined period of time.

7. A device for indicating an undesired operating  
condition of a centrifugal separator comprising: a centrifugal  
rotor forming a separation chamber, a supply conduit for  
supplying a liquid mixture to be separated to the separation  
chamber, the liquid mixture containing at least two components,  
5 at least two outlets for discharging separated components,  
respectively, out of the separation chamber, one outlet of the  
two outlets for discharging a separated liquid phase comprising  
one of the two components, and a first outlet conduit, the  
interior which communicates with said one outlet,

10 an inlet valve situated in the supply conduit and  
adjustable between open and closed positions,

a first outlet valve situated in the first outlet conduit  
and adjustable between open and closed positions, the valves  
15 being adjustable in at least partly open normal valve positions  
for passing normal flows through the supply and outlet conduits  
during normal operation of the centrifugal separator,

a pressure sensor for detecting the pressure in the first  
outlet conduit upstream the outlet valve,

20        a signal means for generating an error signal, and  
          a control unit for activating the signal means to generate  
          the error signal in response to the pressure sensor detecting  
          during a predetermined period of time of the operation of the  
          centrifugal separator a course of pressure change in the outlet  
25        conduit differing from an expected normal course of pressure  
          change, when the inlet and outlet valves during the  
          predetermined period of time are adjusted in valve positions  
          which at least substantially decreases the flows in the supply  
          and outlet conduits from the normal flows therein.

8.        A device according to claim 7, wherein during the  
predetermined period of time the control unit is adapted to  
activate the signal means to generate the error signal in  
response to the pressure sensor detecting a course of pressure  
5        change in the first outlet conduit differing from an expected  
normal course of pressure change, when the first outlet valve is  
closed and the first inlet valve is adjusted in a valve position  
which at least substantially decreases the flow in the supply  
conduit from the normal flow therein.

9.        A device according to claim 7, wherein during the  
predetermined period of time the control unit is adapted to  
activate the signal means to generate the error signal in  
response to the pressure sensor detecting a course of pressure  
5        change in the first outlet conduit differing from an expected  
normal course of pressure change, when the inlet and outlet  
valves are closed.

10. A device according to claim 7, wherein the second of  
the separated components is constituted by sludge, the second  
outlet of the centrifugal separator is formed by a sludge  
discharge means for intermittent discharge of the sludge, the  
5 centrifugal rotor forms an outlet chamber for said one  
component, and a paring disc is arranged in the outlet chamber  
and forms said one outlet, and during the predetermined period  
of time the control unit is adapted to activate the signal means  
to generate the error signal in response to the pressure sensor  
10 detecting a pressure in the first outlet conduit which is below  
a predetermined pressure, which is lower than a normal operation  
pressure in the first outlet conduit.

11. A device according to claim 7, in which the second of  
the separated components is constituted by sludge and the second  
outlet of the centrifugal separator is formed by a sludge  
discharge means for continuous discharge of the sludge, and  
5 during the predetermined period of time the control unit is  
adapted to activate the signal means to generate the error  
signal in response to the pressure sensor detecting a pressure  
in the first outlet conduit which decreases at a rate differing  
from an expected normal pressure decreasing rate.

12. A device according to claim 5, wherein the control unit controls the inlet valve for adjusting the valve position thereof, and that during the predetermined period of time the control unit is adapted to activate the signal means to generate  
5 the error signal and lock the inlet valve in a closed valve position in response to the pressure sensor detecting a course of pressure change in the first outlet conduit differing to an unacceptably large extent from the expected normal course of pressure change.

13. A device according to claim 7, wherein the control unit controls the outlet valve for adjusting the valve position thereof.